



Volunteer Lake Assessment Program Individual Lake Reports

GOOSE POND, CANAAN, NH

MORPHOMETRIC DATA

Watershed Area (Ac.):	10,176	Max. Depth (m):	11	Flushing Rate (yr ⁻¹)	1.6
Surface Area (Ac.):	554	Mean Depth (m):	4.5	P Retention Coef:	0.6
Shore Length (m):	10,100	Volume (m ³):	11,296,500	Elevation (ft):	829

TROPHIC CLASSIFICATION

Year	Trophic class
1988	OLIGOTROPHIC
2005	MESOTROPHIC

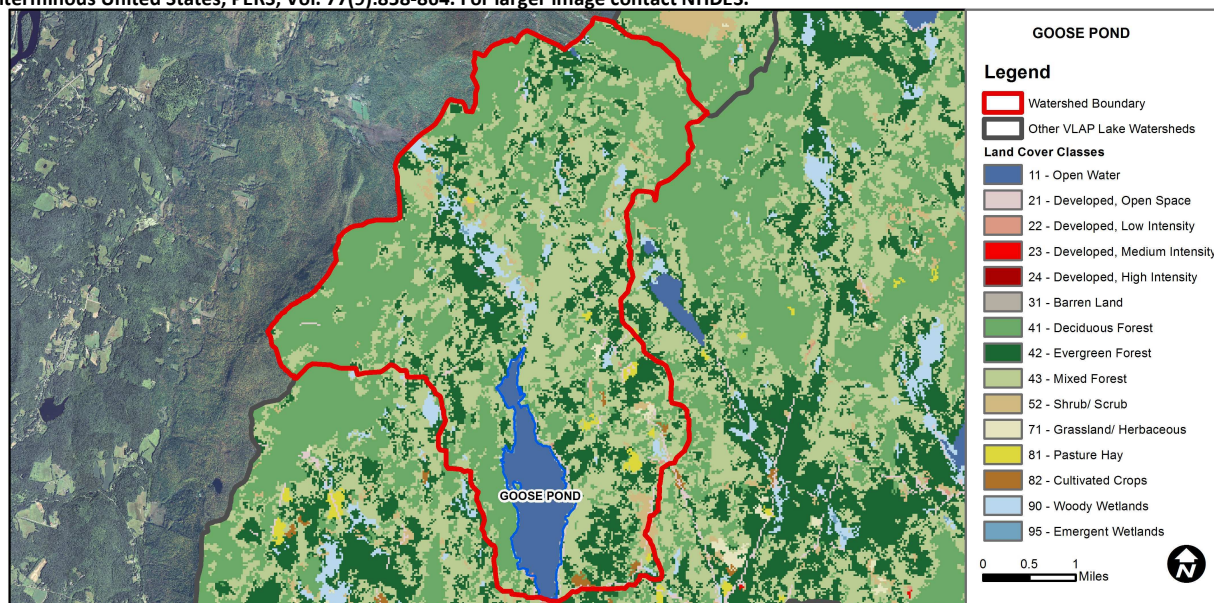
KNOWN EXOTIC SPECIES

The Waterbody Report Card tables are generated from the DRAFT 2014 305(b) report on the status of N.H. waters, and are based on data collected from 2004-2013. Detailed waterbody assessment and report card information can be found at www.des.nh.gov/organizations/divisions/water/wmb/swqa/index.htm

Designated Use	Parameter	Category	Comments
Aquatic Life	Phosphorus (Total)	Cautionary	The calculated median is fewer than 5 samples but > indicator and the chlorophyll a indicator is okay. More data needed.
	pH	Slightly Bad	>10% of samples exceed criteria by a small margin (minimum of 2 exceedances).
	Oxygen, Dissolved	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Dissolved oxygen satura	Encouraging	There are < 10 samples with 0 exceedances of criteria. More data needed.
	Chlorophyll-a	Cautionary	The calculated median is fewer than 5 samples but > indicator. More data needed.
Primary Contact Recreation	Escherichia coli	Very Good	Where there are no geometric means, all bacteria samples are < 75% of the geometric mean. Where there are geometric means all single bacteria samples are < the SSMC and all geometric means are < geometric mean criteria.
	Cyanobacteria hepatoto	Slightly Bad	Cyanobacteria bloom(s).
	Chlorophyll-a	Very Good	There are a total of at least 10 samples with 0 exceedances of indicator.

WATERSHED LAND USE SUMMARY

Fry, J., Xian, G., Jin, S., Dewitz, J., Homer, C., Yang, L., Barnes, C., Herold, N., and Wickham, J., 2011. Completion of the 2006 National Land Cover Database for the Conterminous United States, PERS, Vol. 77(9):858-864. For larger image contact NHDES.



Land Cover Category	% Cover	Land Cover Category	% Cover	Land Cover Category	% Cover
Open Water	5.98	Barren Land	0	Grassland/Herbaceous	0.16
Developed-Open Space	1.04	Deciduous Forest	34.05	Pasture Hay	0.52
Developed-Low Intensity	0.06	Evergreen Forest	18.08	Cultivated Crops	0.26
Developed-Medium Intensity	0	Mixed Forest	35.68	Woody Wetlands	2.66
Developed-High Intensity	0	Shrub-Scrub	1.29	Emergent Wetlands	0.22



VOLUNTEER LAKE ASSESSMENT PROGRAM INDIVIDUAL LAKE REPORTS

GOOSE POND, CANAAN

2015 DATA SUMMARY

RECOMMENDED ACTIONS: Water quality was good in 2015 and has generally remained stable in the lake since 2007. Chlorophyll levels have remained lower in the lake since 2011 which is a good sign. Marshall Brook experienced elevated phosphorus in the spring and fall and flushing of wetland systems and stagnant water may have contributed to the elevated levels. Otherwise tributary water quality was good for the lake. Continue implementing watershed management best practices and keep up the great work!

OBSERVATIONS (Refer to Table 1 and Historical Deep Spot Data Graphics)

- ◆ **CHLOROPHYLL-A:** Chlorophyll levels were within a moderate range from May through July and then decreased to low levels in August and September. Average chlorophyll levels were stable with 2014 and were less than the state median. Visual inspection of historical data indicate lower chlorophyll levels since 2012.
- ◆ **CONDUCTIVITY/CHLORIDE:** Deep spot, Goose Pond, Big Island Cove, Island View, and Marshall Brooks' conductivity levels were low and less than the state median. Hinkson and Mourton Brook conductivity levels were slightly greater than the state median however not above a level of concern. Visual inspection of historical data indicates stable epilimnetic (upper water layer) conductivity since 2007.
- ◆ **E. COLI:** Beach and Little Island E. coli levels were very low and much less than the state standard of 88 cts/100 mL for public beaches.
- ◆ **TOTAL PHOSPHORUS:** Epilimnetic phosphorus levels were low in May and June, increased slightly in July, and then decreased to low levels in August and September. Metalimnetic (middle water layer) phosphorus levels were low in May, increased to slightly elevated levels in June and July, then decreased to low levels in August and September. Pollen was noted in June and could have caused the elevated phosphorus, and algae was noted in July which may have been triggered by the elevated phosphorus. Average epilimnetic phosphorus decreased from 2014 and was much less than the state median. Visual inspection of historical data indicates slightly variable epilimnetic phosphorus since 2007. Hypolimnetic (lower water layer) phosphorus was slightly elevated in September potentially due to low water levels and nutrients concentrated in hypolimnetic waters. Tributary phosphorus levels were generally low except for Marshall Brook. Phosphorus was elevated in May following a storm event and organic matter was noted in the sample, and in September during very dry conditions.
- ◆ **TRANSPARENCY:** Transparency was high (good) in May, and lower in June due to pollen and waves, and July due to algae. Transparency improved in August and September was the best measured since monitoring began. Average transparency improved from 2014 and was much better than the state median. Visual inspection of historical data indicates slightly variable transparency since 2007. Transparency measured with the viewscope (VS) was high (good) and generally stable from May through August and then improved in September.
- ◆ **TURBIDITY:** Epilimnetic and hypolimnetic turbidities were low from May through September. Metalimnetic turbidity was elevated in May potentially due to a layer of algae. Big Island Cove Bk. turbidity was slightly elevated in June and July and sediment was noted in both samples. Marshall Bk. turbidity was elevated in May following a storm event and organic matter was noted in the sample. Mourton Bk. turbidity was elevated in July and sediment and organic matter were noted in the sample.
- ◆ **PH:** Epilimnetic and metalimnetic pH levels were within the desirable range 6.5-8.0 units, however hypolimnetic pH fluctuated below the desirable range. Visual inspection of historical data indicates stable epilimnetic pH since 2007. Tributary pH levels were generally within the desirable range.

NH Median Values: Median values for specific parameters generated from historic lake monitoring data.

Alkalinity: 4.9 mg/L

Chlorophyll-a: 4.58 mg/m³

Conductivity: 40.0 uS/cm

Chloride: 4 mg/L

Total Phosphorus: 12 ug/L

Transparency: 3.2 m

pH: 6.6

NH Water Quality Standards: Numeric criteria for specific parameters. Results exceeding criteria are considered a water quality violation.

Chloride: > 230 mg/L (chronic)

E. coli: > 88 cts/100 mL – public beach

E. coli: > 406 cts/100 mL – surface waters

Turbidity: > 10 NTU above natural level

pH: between 6.5-8.0 (unless naturally occurring)

Station Name	Table 1. 2015 Average Water Quality Data for GOOSE POND								pH
	Alk. mg/l	Chlor-a ug/l	Cond. uS/cm	E. Coli #/100ml	Total P ug/l	Trans. m		Turb. ntu	
						NVS	VS		
Epilimnion	7.4	3.12	37.5		6	5.18	5.67	0.64	6.78
Metalimnion			37.0		8			1.28	6.62
Hypolimnion			37.8		9			0.91	6.47
Goose Pond Brook			38.2		6			0.79	6.91
Beach				5					
Big Island Cove Brook			38.3		8			1.74	6.65
Hinkson Brook			77.0		6			1.11	6.79
Island View Brook			34.8		6			1.15	6.56
Little Island				0					
Marshall Brook			38.2		20			1.44	6.64
Mourton Brook			73.2		5			2.23	6.84

HISTORICAL WATER QUALITY TREND ANALYSIS

Parameter	Trend	Explanation	Parameter	Trend	Explanation
Conductivity	N/A	Ten consecutive years of data necessary for analysis.	Chlorophyll-a	N/A	Ten consecutive years of data necessary for analysis.
pH (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.	Transparency	N/A	Ten consecutive years of data necessary for analysis.
			Phosphorus (epilimnion)	N/A	Ten consecutive years of data necessary for analysis.

